

WHAT IS CLAIMED IS:

1. An optical free-space communication apparatus comprising:

a first light-emitting source for emitting a first transmission optical beam having a plane of polarization in a predetermined direction, the first transmission optical beam being modulated according to a primary signal containing communication information;

a second light-emitting source for emitting a second transmission optical beam having a plane of polarization perpendicular to the plane of polarization of the first transmission optical beam, the second transmission optical beam being modulated according to an auxiliary signal for angle detection;

a transmitting optical system for emitting the first and second transmission optical beams out of said optical free-space communication apparatus as optical beams each having a predetermined angle of divergence; and

driving means for redirecting the outgoing paths of the first and second transmission optical beams,

wherein the second transmission optical beam has a larger angle of divergence than the first transmission optical beam.

2. An optical free-space communication apparatus according to Claim 1, further comprising:

an optical component for splitting a reception optical beam transmitted from another apparatus into a first reception optical beam having a plane of polarization in a predetermined direction and a second reception optical beam having a plane of polarization perpendicular to the plane of polarization of the first reception optical beam;

a first light-receiving device for detecting the first reception optical beam split by said optical component;

a second light-receiving device for detecting the second reception optical beam split by said optical component; and

an arithmetic operation circuit for determining the angle control signal based on the output of the second light-receiving device,

wherein said driving means is controlled according to the angle control signal determined by said arithmetic operation circuit.

3. An optical free-space communication apparatus according to Claim 2, wherein said optical component comprises a receiving polarization beam splitter.

4. An optical free-space communication apparatus

according to Claim 2, further comprising a receiving lens for guiding the reception optical beam transmitted from the other apparatus to said optical component.

5. An optical free-space communication apparatus according to any one of Claims 1 to 4, wherein said transmitting optical system comprises a transmitting polarization beam splitter for combining the first transmission optical beam and the second transmission optical beam, and a transmitting lens for emitting the resulting transmission optical beam combined by said transmitting polarization beam splitter out of said optical free-space communication apparatus.

6. An optical free-space communication apparatus according to any one of Claims 1 to 4, wherein said driving means comprises a vertical driving unit for vertically redirecting the travelling paths of the first and second transmission optical beams, and a horizontal driving unit for horizontally redirecting the travelling paths of the first and second transmission optical beams.